

SAFETY DATA SHEET

Section 1. Identification

GHS product identifier : [REDACTED]
Other means of identification : Not available.
Product type : Liquid.
Material uses : [REDACTED]
For R&D use only.
Supplier : [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
e-mail address of person responsible for this SDS : [REDACTED] (Communication in English only please)
Emergency telephone number : [REDACTED]
CHEMTREC (within the USA): (800) 424-9300 (24 hour)
CHEMTREC (International): +1 (703) 527-3887 [USA] (24 hour)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture : SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

GHS label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : P280 - Wear protective gloves: < 1 hour (breakthrough time): (0.12 mm) Nitrile gloves..
Wear eye or face protection.
P260 - Do not breathe vapor.
P264 - Wash hands thoroughly after handling.
P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
Response : P314 - Get medical attention if you feel unwell.
P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
P333 + P313 - If skin irritation or rash occurs: Get medical attention.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical attention.

Storage : Not applicable.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Hazardous Material Information System (U.S.A.) - 4 -

Health	*	2
Flammability		1
Physical hazards		0

The PPE (Personal Protection Equipment) designation in the HMIS is provided for use by employees at supplier sites only. Other users of this product are encouraged to evaluate the hazards of the product and assign PPE that is applicable to their specific situations.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number : Not applicable.

Ingredient name	%	CAS number
Epoxy	25 - 50	-
Epoxy	10 - 25	-
Multifunctional Acrylate	10 - 25	-
Monomer	10 - 25	-
Photo-initiators	1 - 5	-
Multifunctional Acrylate	1 - 5	-
Additive	1 - 5	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention following exposure or if feeling unwell. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed**Potential acute health effects**

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes skin irritation. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
irritation
redness
Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.
Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures**Extinguishing media**

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
carbon dioxide
halogenated compounds
(dense) black smoke
aldehydes
organic acids

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store between the following temperatures: 15 to 30°C (59 to 86°F). Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Store in original container, protected from direct sunlight.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Epoxy
Epoxy
Multifunctional Acrylate
Monomer
Photo-initiators

None.
None.
None.
None.

OSHA PEL (United States).

TWA: 5 mg/m³

ACGIH TLV (United States).

TWA: 3 mg/m³

Multifunctional Acrylate
Additive

None.
None.

Appropriate engineering controls

: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. < 1 hour (breakthrough time): (0.12 mm) Nitrile gloves.

Body protection

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Remarks

: Wear nitrile or other chemical resistant gloves to avoid skin contact when handling partially cured fabricated objects in the "green" state of cure (after initial laser cure). The fabricated objects may be handled without gloves after the object has been thoroughly washed with solvent (e.g. tripropylene glycol monomethyl ether, isopropyl alcohol) followed by exposure to UV light and/or an oven bake at temperatures above 130°C. When sanding fully cured surfaces, suitable respiratory protection for dust should be used. Good general ventilation is required when tooling or sanding to avoid inhalation of particulate matter or airborne particles. Avoid sanding or finishing parts that are not fully cured, as uncured material may cause skin sensitisation or respiratory irritation.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Clear yellow.
Odor	: Characteristic.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: Not available.
Boiling point	: Not available.
Flash point	: Closed cup: >212°F (>100°C) [(estimate)]
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: 0.9 to 1.2 (Water = 1)
Density (g/cm ³)	: 0.9 to 1.2 g/cm ³ (23°C)
Bulk density	: Not available.
Solubility	: Not available.
Solubility in water	: Not available.
Solubility at room temperature	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Dynamic (room temperature): >300 mPa·s (>300 cP)

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: No specific data.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Epoxy	LD50 Dermal	Rabbit	20000 mg/kg	-
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
Epoxy	LD50 Oral	Rat	4490 mg/kg	-
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-
Multifunctional Acrylate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg (LD0 2000 mg/kg)	-
	LD50 Oral	Rat - Female	>2000 mg/kg (LD0 2000 mg/kg)	-
Monomer	LD50 Oral	Rat - Male, Female	>2000 mg/kg (LD0 = 2000 mg/kg)	-
Multifunctional Acrylate Additive	LD50 Oral	Rat	>2000 mg/kg	-
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Epoxy	Skin - Primary dermal irritation index (PDII)	Rabbit	1.35	-	-
	Skin - Erythema/Eschar	Rabbit	1	-	24 hours
	Skin - Erythema/Eschar	Rabbit	0.8	-	48 hours
	Skin - Erythema/Eschar	Rabbit	0.7	-	72 hours
	Skin - Edema	Rabbit	0.5	-	24 hours
	Skin - Edema	Rabbit	0	-	48 hours
	Skin - Edema	Rabbit	0	-	72 hours
	Eyes - Cornea opacity	Rabbit	0	-	-
	Eyes - Iris lesion	Rabbit	0	-	-
	Eyes - Redness of the conjunctivae	Rabbit	0 to 2	-	-
Multifunctional Acrylate	Skin - Non-irritating	Rabbit	0	4 hours 0.5 ml	24 to 72 hours
	Eyes - Non-irritating	Rabbit	0	0.1 ml	24 to 72 hours
Monomer	Skin - Erythema/Eschar	Rabbit	1	4 hours 0.5 ml	24 to 72 hours
	Skin - Edema	Rabbit	0	4 hours 0.5 ml	24 to 72 hours
	Eyes - Cornea opacity	Rabbit	1	0.1 ml	24 to 72 days
	Eyes - Iris lesion	Rabbit	0	0.1 ml	24 to 72 days
	Eyes - Redness of the conjunctivae	Rabbit	3	0.1 ml	24 to 72 hours
	Eyes - Edema of the conjunctivae	Rabbit	3	0.1 ml	24 to 72 hours
Multifunctional Acrylate	Skin - Moderate irritant	Mammal - species unspecified	-	-	-
	Eyes - Irritant	Mammal - species unspecified	-	-	-
	Respiratory - Irritant	Mammal - species unspecified	-	-	-
Additive	Eyes - Irritant	Rabbit	-	-	-
	Skin - Non-irritating	Rabbit	0	-	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Epoxy	skin	Guinea pig	Sensitizing
Epoxy	skin	Mouse	Sensitizing
Multifunctional Acrylate	skin	Mouse	Sensitizing
Monomer	skin	Guinea pig	Not sensitizing
Multifunctional Acrylate	skin	Mammal - species unspecified	Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Epoxy	-	Experiment: In vitro Subject: Bacteria	Positive
	-	Experiment: In vitro Subject: Mammalian-Animal	Positive
	-	Experiment: In vitro Subject: Mammalian-Animal	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
	-	Experiment: In vitro Subject: Mammalian-Animal	Equivocal
	-	Experiment: In vivo Subject: Mammalian-Animal	Negative
Epoxy	OECD 474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
Multifunctional Acrylate	Mammalian cell gene mutation assay	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: Without	Positive
	Mammalian cell gene mutation assay	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: With	Negative
	Mammalian cell gene mutation assay	Experiment: In vivo Subject: Mammalian-Animal	Negative
Monomer	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: Without & with	Negative
	OECD 476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: Without & with	Negative
	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: Without & with	Negative
Additive	OECD 482 Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells <i>in vitro</i>	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic Metabolic activation: Without & with	Negative
	OECD 482 Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells <i>in vitro</i>	Experiment: In vivo Subject: Mammalian-Animal	Negative

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Multifunctional Acrylate	Negative - Oral - NOAEL	Rat - Female	100 mg/kg /day	-
	Negative - Dermal - NOAEL	Mouse - Male	100 mg/kg /day	-
	Negative - Oral - NOAEL	Rat - Male	15 mg/kg /day	-

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Epoxy	-	-	-	Rat	Oral: 25 mg/kg mg/kg bw/day	-
	-	-	-	Rat	Oral: 125 mg/kg mg/kg bw/day	-
Epoxy	-	Negative	Negative	Rat - Male, Female	Oral: >900 mg/kg NOAEL Parental, F1	-
Multifunctional Acrylate	-	Negative	-	Rat - Male, Female	Oral: 750 mg/kg / day (NOEL)	-
	-	-	Negative	Rabbit - Male, Female	Oral: 180 mg/kg / day (NOAEL)	-
	-	-	Negative	Rat	Oral: 180 mg/kg / day (NOAEL)	-
Additive	-	Negative	-	Mouse - Male, Female	Oral: 10100 mg/kg /day	-
	-	Negative	-	Mouse - Male, Female	Oral: 10100 mg/kg /day	-

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Epoxy	Negative - Oral	Rat - Female	-	-

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Photo-initiators	Category 2	Oral	Not determined

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes skin irritation. May cause an allergic skin reaction.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Epoxy	Sub-chronic NOEL Oral	Rat - Male, Female	5 mg/kg mg/kg bw/day	-
Epoxy	Sub-chronic NOAEL Oral	Rat - Male, Female	<100 mg/kg	90 days
Multifunctional Acrylate	Sub-chronic NOAEL Oral	Rat - Male, Female	50 mg/kg /day	-
Monomer	Sub-chronic NOEL Dermal	Rat - Female	10 mg/kg /day	-
	Sub-chronic NOEL Dermal	Mouse - Male	100 mg/kg /day	-
	Sub-acute NOEL Oral	Rat - Male, Female	1000 mg/kg day	-
Photo-initiators Additive	Sub-acute NOEL Oral	Rat	12 mg/kg 28 days	-
	Sub-chronic NOAEL Oral	Rat - Male, Female	>5000 mg/kg /day	90 days; 5 days per week
	Sub-chronic NOAEC Inhalation Dusts and mists	Rat - Male, Female	1000 mg/m ³	93 days; 6 hours per day 5 days per week

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	8400.1 mg/kg
Dermal	55055.1 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Epoxy	EC50 90 mg/l	Algae	72 hours
	EC50 40 mg/l	Daphnia	48 hours
	LC50 24 mg/l	Fish	96 hours
	NOEC 22 mg/l	Algae	72 hours
	NOEC 10 mg/l	Daphnia	48 hours
	NOEC 3.2 mg/l	Fish	96 hours
Multifunctional Acrylate	NOEC 0.3 mg/l Fresh water	Daphnia	21 days
	Acute EC50 >11 mg/l Fresh water	Algae	72 hours
	Acute EC50 1.7 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 1.2 mg/l Fresh water	Fish	96 hours
Monomer	Acute EC50 6420 mg/l Fresh water	Algae	72 hours
	Acute EC50 6910 mg/l Fresh water	Daphnia	48 hours
Photo-initiators	Acute LC50 7500 mg/l Fresh water	Fish	96 hours
	EC50 >980000 mg/l	Algae	72 hours
	EC50 >85 mg/l	Micro-organism	28 days
Additive	Acute EC50 0.2 mg/l	Daphnia	48 hours
	Acute LC50 14 mg/l	Fish	96 hours
	Acute EC50 >900 mg/l Fresh water	Algae	72 hours
	Acute EC50 >1000 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 >1000 mg/l Fresh water	Fish	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Epoxy	-	71 % - Readily - 28 days	-	-
Multifunctional Acrylate	OECD 301F	28 % - 5 days	-	-
	Ready Biodegradability - Manometric Respirometry Test			
Monomer	OECD 302B	<1 % - 28 days	-	-
	Inherent Biodegradability: Zahn-Wellens/EMPA Test			
	OECD 301B	<1 % - 28 days	-	-
	Ready Biodegradability - CO ₂ Evolution Test			
Additive	OECD 301B	69.3 % - Readily - 9 days	-	Activated sludge
	Ready Biodegradability - CO ₂ Evolution Test			

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Epoxy	-	-	Readily
Epoxy	-	-	Not readily
Multifunctional Acrylate	-	-	Not readily
Monomer	-	-	Not readily
Photo-initiators	-	-	Not readily
Additive	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Epoxy	1.34	-	low
Epoxy	1.6 to 3	-	low
Multifunctional Acrylate	2.64 to 3.78	31	low
Monomer	0.6	-	low
Photo-initiators	3 to 3.5	-	low
Additive	-0.48	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.











Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor via incineration. Waste should not be disposed of to the sewer. Do not rinse product to the sewer. Incinerate unwanted products and empty containers. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not allow dispersal of spilled material and runoff to contact with soil, waterways, drains, or sewers.

Remarks :

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	UN3082	UN3082	UN3082	UN3082	UN3082
UN proper shipping name	-	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) , (4-(1-methylethyl) phenyl)-(4-methylphenyl) iodonium tetrakis (pentafluorophenyl) borate (1-))	SUBSTANCIA LIQUIDA POTENCIALMENTE PELIGROSA PARA EL MEDIO AMBIENTE, N. E.P. (reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) , (4-(1-methylethyl) phenyl)-(4-methylphenyl) iodonium tetrakis (pentafluorophenyl) borate (1-))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) , (4-(1-methylethyl) phenyl)-(4-methylphenyl) iodonium tetrakis (pentafluorophenyl) borate (1-))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) , (4-(1-methylethyl) phenyl)-(4-methylphenyl) iodonium tetrakis (pentafluorophenyl) borate (1-))	Environmentally hazardous substance, liquid, n.o.s. (reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) , (4-(1-methylethyl) phenyl)-(4-methylphenyl) iodonium tetrakis (pentafluorophenyl) borate (1-))

Transport hazard class(es)	-	9	9	9	9	9
						
						
Packing group	-	III	III	III	III	III
Environmental hazards	No.	Yes.	Yes.	Yes.	Yes.	Yes.

Additional information

TDG Classification	: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9), 2.7 (Marine pollutant mark). Non-bulk packages of this product are not regulated as dangerous goods when transported by road or rail. Explosive Limit and Limited Quantity Index 5 Special provisions 16, 99
Mexico Classification	: The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Special provisions 274, 331, 335
ADR/RID	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Hazard identification number 90 Limited quantity 5 L Special provisions 274, 335, 601, 375
IMDG	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. Emergency schedules F-A, S-F Special provisions 274, 335, 969
IATA	: This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8. Quantity limitation Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964. Special provisions A97, A158, A197
Special precautions for user	: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Transport in bulk according to Annex II of MARPOL and the IBC Code	: Not available.

Section 15. Regulatory information

U.S. Federal regulations	: United States inventory (TSCA 8b): Not determined. Clean Water Act (CWA) 307: toluene; benzene Clean Water Act (CWA) 311: toluene; benzene
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	Product/ingredient name	CAS #	%
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Acrylic acid	79-10-7	0.026474
	Toluene	108-88-3	0.001003
	Benzene	71-43-2	0.000018

Clean Air Act Section 602 : Not listed
Class I Substances

Clean Air Act Section 602 : Not listed
Class II Substances

DEA List I Chemicals : Not listed
(Precursor Chemicals)

DEA List II Chemicals : Not listed
(Essential Chemicals)

Form R - Reporting
requirements

Supplier notification

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : None of the components are listed.

California Prop. 65

WARNING: This product contains less than 0.1% of a chemical known to the State of California to cause cancer. **WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Toluene	No.	Yes.		Yes.
Benzene	Yes.	Yes.	Yes.	Yes.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Ingredient name	List name	Status
Not listed.		

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Ingredient name	List name	Status
Not listed.		

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Ingredient name	List name	Status
Not listed.		

International lists

Canada inventory : Not determined.

Section 16. Other information**History**

Code	: DES002100WW62905
Date of printing	: 1/8/2018
Date of issue/Date of revision	: 1/8/2018
Date of previous issue	: 1/8/2018
Version	: 1.03
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

Procedure used to derive the classification

Classification	Justification
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

References : Not available.

🔍 Indicates information that has changed from previously issued version.

Notice to reader

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